



Stringing Machine



Owner's Manual

1st Edition - March 2017



Owner's Manual

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Description of Stringer

A racket stringer is a mechanical device used to properly install strings to a specific weight/tension. The machine can be used for tennis, racketball, squash and adaptable for badminton. Tension is applied using a manual crank, drop weight, or electric tensioning system. Machines come equipped with a 2-point, 4-point, or 6-point mounting system that provide support to your racket while being strung. Full 360-degree turntable with brake. 5-tooth, slip profile, quick action, rotating swivel clamps are very easy to maneuver.

Brief History of Stringing

Racket Stringing was long done by hand using awls to jam strings into holes and using plucked pitch of a string to test the tension. This method of stringing was not efficient and would often damage the racket and strings. It wasn't until 1950 that Australian engineers and designers developed the first drop weight stringers.

Tension Systems

1. **Drop Weight:** This was the first developed tension system that used a weighted bar to achieve desired tension.
2. **Manual Crank (lockout):** A hand crank or lockout machine has a lever that pulls the string until it reaches the desired tension, then a spring loaded device locks the string, allowing it to stretch and loosen.
3. **Electric (constant pull):** A constant-pull machine is most preferred, it pulls the string to the desired tension and then continues to pull as the string stretches to maintain that tension until the string is clamped.

1. Drop weight²



2. Manual Crank¹



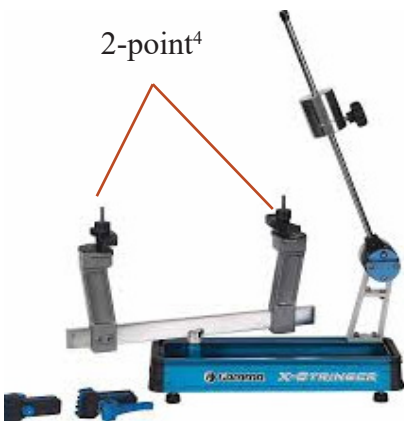
3. Electronic²



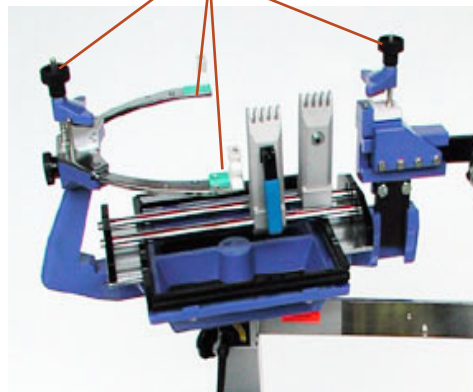
Mounting System Pros VS Cons

	Pro	Con
2-Point	Only touches the racket in 2 places, which makes it convenient and quick, with fewer places for the string to get tangled, and fewer blocked holes.	Offers less support to the racket frame, common warping of the frame due to high pressure from string.
4-Point	Offers mid-range support on the throat and the head as well as both sides.	Can allow minimal warping to occur. Blocks 2 to 4 holes.
6-Point	Offers highest support and will not warp racket.	Blocks 4 to 8 holes making stringing process much more difficult.

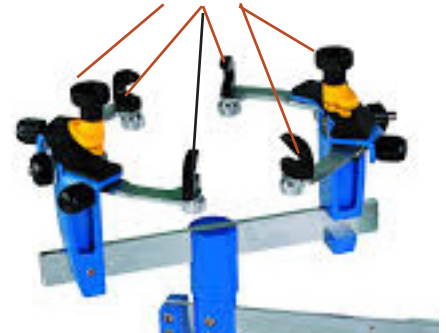
2-point⁴



4-point¹



6-point¹



The Stringing Machine



Eagnas Flex 920¹

The Eagnas Flex 920 is a versatile stringing machine designed for every skill level. The machine is shipped in two cartons, a Master Carton houses the stringing floor stand, tensioner, base legs, and accessories. The Mounting System Carton contains the turntable, clamps, and mounting system. The following paragraphs will list and describe each part of the stringing machine and its function.

Master Carton

- Lower column support post
- Upper column support post
- Tool tray/pad
- Tensioner assembly

Mounting System Carton

- Turntable Assembly
- String Clamps

Lower Column Support Post (Below the tray)

The lower support is a 36" metal column each side is 3". The stringing machine used a four-leg base design for maximum stability. Each foot of the Base Stand can be adjusted to compensate for uneven floors.

Upper Column Support Post (Above the Tray)

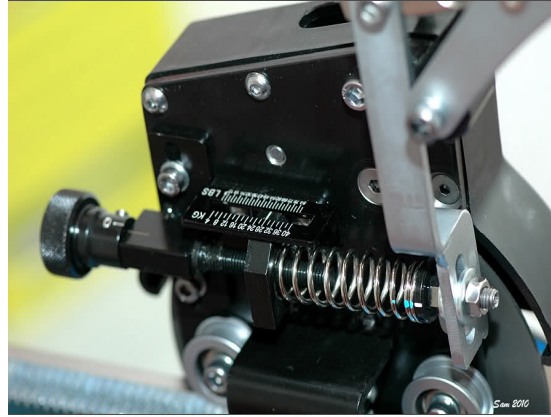
The upper support is a 12" metal column which fits inside of the lower column. It can be adjusted by pulling up on the table until you reach a comfortable height, turn the knob on the column clock wise until table is secure. The column supports the stringing machine and is height adjustable from 36" to 48" allowing it to be comfortably used.

Tensioner Assembly

Manual spring tension winder (9-90lbs/4-43kg) tension range. the tensioner utilizes a rotary adjusting knob along with a linear tension scale to indicate the tension settings. The scale is divided into 3 lb increments.. total weight 28 kilo. Adjustable-width linear ball bearing string gripper.



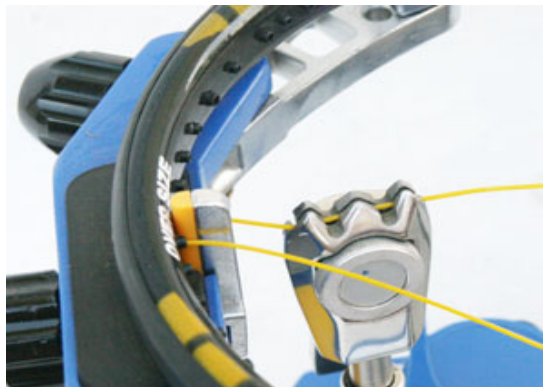
Tensioner Assembly (front)⁴



Spring Tension Winder (back)⁴

String Clamps

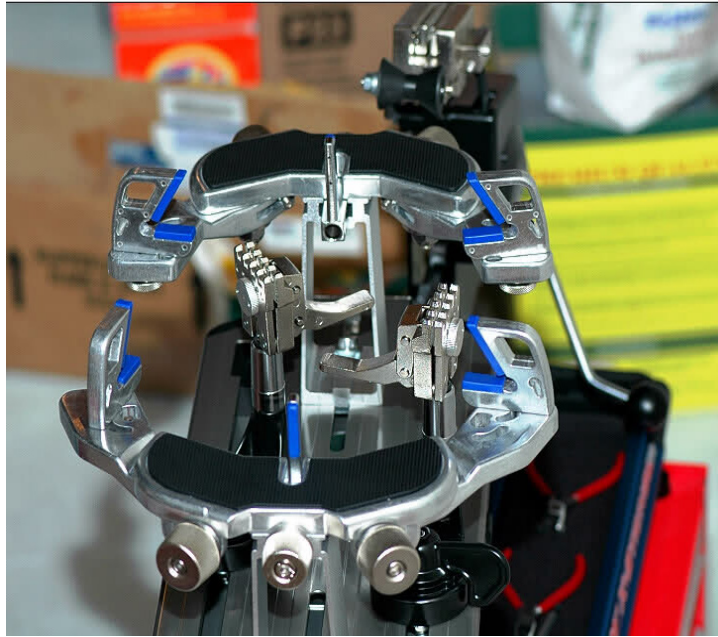
The string clamps are a dual action design where the string clamp and clamp base operate independantly of one another. To clamp a string, lift the string clamp, place the string between the jaws and depress the string clamp levr to secure the string. The clamping pressure applied to the string should be adjusted to provide sufficient pressure to secure the string when subjected to the desired pulling tension. The diamond coated gripper plates provide for increased fricton between the clamps and the string to allow for reduced clamping pressure while



Picture: 4 String clamps¹

Turn Table

6-Point Quick Mount System featuring a top-side clamp down system to minimize obstructions that can snag string. 360-degree turntable rotation with locking brake. Made mostly of stainless steel with rubber mats for the racket to rest on.



Picture: 5 Turn Table⁴

Racket Stringing Guide

1. Preparations

Here you'll find out which tools you need and which preparations are to be done before you can start to string. Most of the following may sound trivial but nevertheless I won't leave out anything for the sake of completeness. This way people who are stringing for the first time will get a complete view of the matter.

1.1. Required Tools

Your most important "tool" - besides your hands - is of course your stringing machine. Your machine can be in the best shape, but without the appropriate accessories you won't get far.

1. Long nose pliers/bent nose pliers: there are places that your fingers just won't fit, pliers will become your best friend when stringing a racket.
2. Diagonal cutters: you will need these anytime you cut the string
3. Cam action pliers: These pliers are used to tighten knots. You grab the string with the pliers and using a rolling action to pull the string and secure the knot.
4. 3 spring starting clamp: These are considered "floating clamps", they are generally used to hold the string in the racket when you are beginning the stringing process.



Eagnas tool box¹

1.2. Measuring the String

Steps:

1. Determine racket size (Standard or Oversized)
2. Measure 35 feet for standard, 40 feet for oversized.
3. placed string around something that won't move or damage the string and stretch the string as much as possible until you don't feel it flex.
4. cut both ends at a 45 degree angle.
5. untangle if necessary while being careful not to kink the string

1.3. Preparing and mounting your frame

Steps: Prepare frame

1. Cut strings diagonally from middle to outside as soon as possible to relieve stress on the frame strings.
2. Take quick notes on the string pattern of that specific racket.
3. Remove string from racket
4. Check grommets for damage, replace if necessary.
5. Check frame for any stress cracks
6. Remove damaged grips

Steps: Mounting

1. Loosen all of the knobs on the stringer
2. Place the racket on the stringer in a balanced way.
3. Adjust knob to fit snug against the frame and then tighten the knobs, repeat step for each point.
4. Before stringing do one last check to make sure the racket isn't able to move. Be sure not to over tighten the knobs as that can cause unnecessary pressure on the frame.

1.4 Adjusting the weight

Steps:

1. Decide how many pounds of pressure you want on the strings
2. Each racket has a diagram printed on it showing how many pounds it was strung with at the factory.
3. Less tension= more power, less control
4. More tension= more control, less power
5. Turn knob clockwise to increase tension
6. Turn knob counter clockwise to decrease tension
7. After stringing set knob back to 0lbs

"Most players use a string tension of around 50 to 60 lbs, but this is a matter of personal preference and one you should experiment with to find what is comfortable for you."⁴

2. The Stringing Process

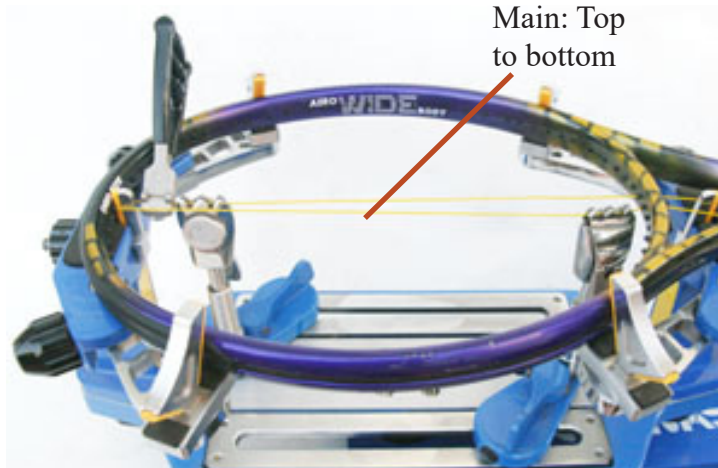
2.1. Determining the stringing pattern

Steps:

1. Look up charts online
2. Determine string point
3. Determine the ending points
4. TIP- If you are the one cutting strings out you can look at the pattern before you take strings out.

2.2. Pulling the main strings

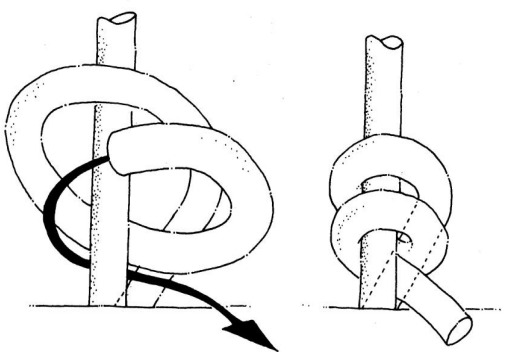
1. crank until the spring reaches the tension you have chosen and it will automatically lock when it has reached the desired tension
2. Start from the center and work your way out being sure not to only do one side
3. Never release the outermost clamp or you will have to restart.
4. repeat process untill all mains are tightened.



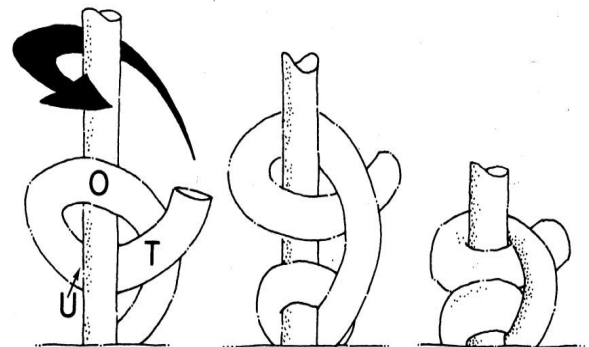
Pulling the main strings¹

2.3. Knots

1. Starting knot: pull string through frame a follow the figure below. This knot is designed to tighten down on itself. Leave string long enough to reach the crank. This will make the knot tighter if you use the crank
2. Ending Knot: This knot is very simmilar to the starting knot but you will do it twice to make sure no tention is lost on the racket



Starting Knot⁵



Ending knot⁵

2.4. Pulling the cross strings

1. Weave cross string through the main strings, make sure you dont skip any strings.
2. Alternate weaves on each row, check often to make sure you havent skipped or you will have to go back and do it again.
3. While pulling cross strings make sure not to damage the main strings due to friction. Bend the strings while pulling to reduce the heat. This process is illustrated on a picture below.
4. After tightening the last cross string, search for a suitable main grommet once again and proceed just like you did at the first knot. now you can release your racket from the mounting and you are finished.
5. The last thing you will want to do is straighten your strings, this can be done by hand.



Find larger hole opening to start cross string



Move strings while pulling the crosses. This will increase the longevity of the strings

Cross Stringing Process⁴

1. M. (2009). Racquet Stringing Tips. Retrieved March 31, 2017, from <http://www.eagnas.com/tips.html>
2. A. (2015, October 12). Tennis Stringing Machine Reviews:. Retrieved March 31, 2017, from <http://www.galttech.com/research/sports/tennis-racquet-stringing-machines.php>
3. S. (2010). Gamma X-ST Review and Pictures. Retrieved March 31, 2017, from <https://tt.tennis-warehouse.com/index.php?threads%2Fgamma-x-st-review-and-pictures.312180%2F>
4. A. (2015, September 07). How to String a Tennis Racquet. Retrieved March 31, 2017, from <http://protennis-tips.net/how-to-string-a-tennis-racquet/>
5. Carter, P. (2013, May 12). How to String a Tennis Racket. Retrieved March 31, 2017, from <https://snapguide.com/guides/string-a-tennis-racket/>

